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Truck-to-Truck Propane Transfers

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There are times when there is a need to transfer liquid propane from one propane transport vehicle to another. Typical uses for truck-to-truck propane liquid transfers are where a smaller tank truck is attached to a barge for island deliveries and specialty off-road tank trucks used for remote deliveries in the oil patch and mine sites. The other times would be in cases of emergencies such as when there is a power outage at the bulk plant or a tank truck or cargo liner tank needs evacuating due to an accident.

Regulatory Requirements

The actual loading, transportation, and unloading of cargo liners and tank trucks fall under the Transportation of Dangerous Goods Regulations (TDG). The loading aspect falls under the task of "offering for transport".

The TDG Regulations do not specifically address truck-to-truck liquid propane transfers but provide general requirements that must be met during the loading and unloading process regardless of where the transfer takes place. Therefore, one must ensure that all of the requirements legislated under the TDG Regulations are met.

The TDG regulations, through the adoption of the *CSA B620 Highway Tank and Portable Tanks for the Transportation of Dangerous Goods* standard stipulate that when loading or unloading a cargo liner or tank truck, you must, during the transfer process, use the fail-safe brake interlock system and chock blocks at the rear wheels of both units involved in the transfer to ensure that both units involved do not move.

The CSA B620 general requirements require that the following conditions must also be met prior to starting the transfer process:

a) Connections must be inspected to ensure the propane liquid will be transferred into the proper connection;
b) The space available in the receiving tank must be verified to ensure that it is sufficient to accommodate the quantity of liquid propane to be transferred;
c) When remotely opening the internal safety control valve (ISC) , you are to have an unobstructed view of the cargo liner tank, delivery hose, and tank truck being filled, to the maximum extent practicable; and
d) The periodic inspection or test intervals for tanks involved in the transfer must be up to date.

During the transfer process:

a) The driver is responsible for the transfer and must have been trained in propane hazards and emergency procedures;
b) The driver is to remain alert, within easy access of the supply and receiving flow shutdown controls, and to the extent possible, with the hose and both tanks in clear view except for brief periods to operate controls or to check the receiving tank;
c) When equipped with an off-truck emergency shutdown system, the driver must be in possession of the control at all times the tank valve is open, within 150 ft. of the tank and 25 ft. of the hose;
d) The driver must control the quantity of propane liquid being transferred; and
e) Immediately after the liquid propane has been transferred, all valves on both the supply and receiving tank must be closed and secured.

Provincial Regulations

The 2010 CAN/CSA *BI49.2 Propane Storage & Handling Code* requires that when offering for transport or transporting propane that the requirements of the TDG regulations must be followed.

The 2015 edition of the CAN/CSA *B149.2 Propane Storage & Handling Code*, to be published in August of 2015, also speaks to this issue. The code stipulates that the contents of a cargo tank or cargo liner may be transferred to the cargo tank on another tank truck or cargo liner in an emergency.

The transfer of propane from a cargo tank or cargo liner for any purpose other than an emergency shall only be performed when specifically approved by the authority having jurisdiction.

It should be noted that for the purposes of the above provision, emergency means a sudden, urgent, usually unexpected occurrence or occasion such as a general power failure, plant mechanical failure, incident, or vehicle mechanical failure requiring immediate action to protect or reduce the hazard to public safety.

Currently, two provinces, British Columbia and Ontario, have issued specific enhanced requirements over and above the TDG requirements as to how truck-to-truck propane liquid transfers are to be carried out in their provinces.

Until such time that the 2015 Code is adopted in your province, you must follow the TDG requirements if your province has not issued additional requirements.

British Columbia - Directive # D-G5 101230 1 - Issued Dec. 30, 2010:

The following Directive outlines the operating procedure that needs to be in place for the tank truck to tank truck transfer of liquid propane along with the required training of the personnel performing this procedure.

General Details:

Clause 8.13.3 of the CAN/CSA B149.2-05 allows the transfer of propane product from one tank truck to another tank truck. In order to perform this procedure, an Operating
Procedure accepted by the BCSA must be in place that describes in detail how, when, and where this activity will take place, along with the specific training of the personnel performing this procedure in accordance with accepted industry practice.

Definitions:

Tank truck - A truck chassis and tank assembly as a complete unit for the bulk delivery of propane.

Cargo Liner - A vehicle that is used to transfer propane in which the tank constitutes the main structural member and that is towed by a separate motor vehicle. Note: For the purposes of this Directive, the terms "Tank Truck" and "Cargo Liner" are interchangeable.

Filling Plant (bulk plant) - A facility, the primary purpose of which is the distribution of propane. Such plants have bulk storage and usually, have container filling and vehicle transfer facilities on the premises. Bulk plants are considered part of this category.

Specific Details:

The above described Operating Procedure must be developed and delivered to the Provincial Safety Manager - Gas for acceptance. Although Clause 8.13.3 of the CAN/CSA B149.2-05 allows for the transfer of propane from one tank truck to another, this activity shall not be performed by any individual who is not following an accepted Operating Procedure.

The only exception is when a propane emergency exists and where it is decided this practice will reduce the risk of accident or severity of an incident. In this case, a Remedial Measures Advisor from the Liquefied Petroleum Gas Emergency Response Corporation must be in attendance and permission from the Provincial Safety Manager or their designate must be received.

Guideline To Required Operating Procedure:

The following are intended as the minimum requirements:

Filling plants must meet the operating requirements described in section 28 of the Gas Safety. Regulation (GSR) and comply with the CAN/CSA B149.2-05.

Tank trucks or cargo liners must comply with all requirements as contained in the CAN/CSA B149.2-05.

Tank truck to tank truck transfer must be performed only by personnel trained in the operating procedure, qualified as required by section 5.2.10f the CAN/CSA B149.2-05, and authorized in accordance with section 4(1)(d) of the GSR.

The facility complies with all Local Government requirements.

Required clearances and related clauses as stated in the CAN/CSA B 149 .2-05 are adhered to during the transfer process:

- The aggregate amount of propane contained in any offloading tank truck and the approved stationary tank(s) shall not exceed the maximum storage capacity of the stationary tank(s).
- A designated filling plant (bulk plant) used to transfer propane from one tank truck to another tank truck shall be approved by the Local and Provincial authorities having jurisdiction.

Ontario - Code Adoption Document FS-211-14 - Effective: Oct. 1, 2014 States:

The contents of a tank on a tank truck or a cargo liner shall not be transferred to the cargo tank on another tank truck or cargo liner unless the operation is carried out at a filling plant.

Except for an emergency such as a loss of power due to unexpected natural weather, the transfer of propane from a

cargo tank to another tank truck or cargo liner at the filling plant shall be approved.

TSSA will consider the following before granting an approval to transfer propane from a cargo tank to another tank truck or cargo liner at a filling plant:

- The filling plant shall hold a valid license.
- The filling plant shall have a permanent licensed storage capacity of at least the largest tank truck, or the amount of the truck to truck transfer shall be specifically approved by TSSA.
- The transfer shall be performed by a Propane Truck Operator (PTO) certificate holder.
- The risks associated with the operation, including mitigation measures and emergency procedures in place.
- Sufficient space to accommodate both tank trucks without blocking any emergency exits shall be maintained; and
- All requirements and minimum clearances of CSA B149.2-10, including emergency shutoff valves shall be complied with.

Protective Clothing

In closing, remember you are handling liquid propane that can cause serious freezer burns and injury if the liquid comes into contact with your skin. You must, therefore, wear the proper protective clothing and gloves when connecting and disconnecting propane hoses during truck-to-truck transfers.

To address your training needs, the Fuels Learning Centre's "Loading & Unloading Propane Cargo Liners" and "Loading and Unloading Propane Tank Trucks" courses include the latest requirements for truck to truck liquid propane transfers by providing the specific TOG and provincial requirements.

About the Author

David Stainrod provides technical fuel and investigative consultation to the public and governments in both Canada and the United States. He is an active member of numerous provincial regulatory committees as well as CSA Codes and Strategic Steering committees. David is President of the Fuels Learning Centre and can be reached by email at david.stainrod@fuelslc.com.